

**REMARKS**

Favorable reconsideration of this application is requested in view of the foregoing amendments and the following remarks. Claims 1-2, 5-7, 9-15, 17-21, 23-27, 29-30, 32-35 and 37-39 are pending in the application. Claims 3-4, 8, 16, 22, 28, 31 and 36 are canceled without prejudice or disclaimer.

The claims are amended in order to more clearly define the invention, support for which is found in the figures and related parts of the specification. Specifically, support for the amendments to claim 1 is found in claims 3-4, at pages 10-11 and in figure 4, all as originally filed. Support for the amendments to claim 14 is found in claims 16 and 18, at pages 10-11 and in figure 4, all as originally filed. Support for the amendments to claim 26 is found in claims 28 and 31, at pages 10-11 and in figure 4, all as originally filed. Support for the amendments to the dependent claims is similarly found at pages 10-11 and figure 4, again as originally filed. Claim 12 is rewritten in independent form and, therefore, this claim as amended is not narrowed.

The title is amended to more concisely name the claimed invention. The abstract is amended to more accurately summarize the claimed invention.

At page 2 of the Action, regarding the IDS submitted June 28, 2001, the Examiner states that Korean Patent Document No. 0065094 (B2) and all references listed under "Other Art" (C1-C27) have been crossed off, as copies were not available to the Examiner. Another IDS with a full and complete set of copies of these references is being filed herewith. If these references go missing again, the Examiner is encouraged to contact the undersigned for an immediate and direct email to the Examiner of complete pdf image copies of all these references so they can be considered on the record.

At page 2 of the Action, the Examiner objects to the drawings. The Examiner's careful consideration of the drawings is appreciated. Applicant submits herewith one copy of two (2) sheets of drawings that overcome the objection to the drawings as set forth by the Examiner by

adding text labels (i.e., "repeater") to blocks 100, 200 and 300. Support for this change to Figs. 1-3 is found at line 6, page 7; lines 21 and 27, page 8; and line 28, page 9 of the specification as originally filed. Applicant requests that the Examiner approve the substitute drawings and withdraw the objection to the drawings. Marked-up versions of the substitute sheet(s) of drawings are attached hereto with the change(s) shown with red ink markings. Upon the Examiner's approval and allowance of this application, Applicant will submit formal drawings that incorporate the proposed change(s).

Accordingly, withdrawal of this objection is respectfully requested.

Claims 8, 22 and 36 were rejected under 35 USC 112(2) as indefinite. Claims 8, 22 and 36 are cancelled without prejudice or disclaimer.

Accordingly, withdrawal of this rejection is respectfully requested.

Claims 22 and 36 were rejected under 35 USC 101 as allegedly directed to non-statutory subject matter. Claims 22 and 36 are cancelled without prejudice or disclaimer.

Accordingly, withdrawal of this rejection is respectfully requested.

Claims 1-4, 8, 14-33 and 35-39 were rejected under 35 USC 102(e) as anticipated by Erreygers U.S. Patent 6,236,664 (hereinafter Erreygers). As noted above, claims 3-4, 8, 16, 22, 28, 31 and 36 are canceled without prejudice or disclaimer.

There is a fundamental distinction between Erreygers and the presently claimed invention of claims 1-2, 5-7, 9-11, 13-15, 17-21, 23-27, 29-30, 32-35 and 37-39. Specifically, Erreygers achieves his repeater function by regeneration of the ADSL signal by first demodulating the composite signal to the bit-stream level and then remodulating to recreate a new composite signal. That is, Erreygers teaches that the repeater function can be achieved by "back-to-back" ADSL modems. This methodology of Erreygers is underscored in figure 3 (and also figure 5) of Erreygers where it is clearly shown that the repeater utilizes back-to-back ADSL

transceivers **62** and **63**. This methodology of Erreygers is further underscored in col. 5, lines 43-45 of Erreygers. The "amplification" referred to in Erreygers is related to this regeneration. By demodulation and remodulation, the Erreygers' repeater recreates a signal of strength equivalent, possibly, to the strength of the signal at the source (which could be the Central Office modem, the Customer Premise modem, or another repeater modem).

This is in sharp contradistinction to the presently claimed invention of claims 1-2, 5-7, 9-11, 13-15, 17-21, 23-27, 29-30, 32-35 and 37-39 that achieves its functionality by **amplification** (where the meaning of the word amplification is conventional) of the composite signal to counter the attenuation effects of the subscriber cable. The presently claimed invention of claims 1-2, 5-7, 9-11, 13-15, 17-21, 23-27, 29-30, 32-35 and 37-39 does not rely on back-to-back ADSL modems and Erreygers disclosure of back-to-back ADSL modems when read as a whole is teaching away from the presently claimed invention of claims 1-2, 5-7, 9-11, 13-15, 17-21, 23-27, 29-30, 32-35 and 37-39.

The highpass filters **56** and **58** in Erreygers are bi-directional and are there solely to separate the ADSL signal spectrum from the voice-band spectrum. In other words, the highpass filters **56** and **58** perform the "splitter" function in a manner equivalent to element **16** at the Central Office or, equivalently, **32** at the Customer Premise (see Erreygers, Fig. 4). This is in sharp contradistinction to the claimed invention of claims 1-2, 5-7, 9-11, 13-15, 17-21, 23-27, 29-30, 32-35 and 37-39 where the (high)pass filters are used to separate the upstream (from Customer Premise to Central Office) (lower frequency) direction from the downstream (from Central Office to Customer Premise) (higher frequency) direction. Similarly, the claimed (band)pass filters of claims 1-2, 5-7, 9-11, 13-15, 17-21, 23-27, 29-30, 32-35 and 37-39 are used to separate out signals in the downstream direction. Because of this, the amplifiers of the claimed invention can be made unidirectional and, therefore, simpler and more efficient. This in-

turn provides a significant commercial advantage. In fact, the (high/band)pass filter(s) of the presently claimed invention of claims 1-2, 5-7, 9-11, 13-15, 17-21, 23-27, 29-30, 32-35 and 37-39 splits the spectrum internally with regard to the ADSL composite spectrum extent.

The “amplifier” referred to in Erreygers, col. 5 lines 49-53, is not an amplifier in the conventional sense of the term but, rather, a regenerator comprising back-to-back ADSL transceivers.

The Erreygers repeater is built around back-to-back ADSL transceivers. In sharp contradistinction, the claimed invention of claims 1-2, 5-7, 9-11, 13-15, 17-21, 23-27, 29-30, 32-35 and 37-39 uses filters to separate the upstream and downstream frequency bands and the application of amplifiers, in the conventional sense of the term, for increasing the signal strength in the two directions independently (without demodulation down to the baseband digital bit-stream).

The (high)pass filter taught by Erreygers is taught to separate the ADSL spectrum from the voice band (low frequency) and power distribution (very low frequency) bands. This is in contradistinction to the claimed invention of claims 1-2, 5-7, 9-11, 13-15, 17-21, 23-27, 29-30, 32-35 and 37-39 that uses the (high)pass and (low/band)pass filters to separate the ADSL spectrum into its upstream and downstream directions.

The lowpass filter 54 in Erreygers is extremely lowpass, and is used to separate essentially dc (zero frequency) from the information band, allowing the very low frequency region to be used for (dc) power distribution for operating the repeater.

In summary, Erreygers simply does not disclose or suggest increasing gain by using isolating upstream and downstream filters and amplifiers.

Accordingly, withdrawal of this rejection is respectfully requested.

Claims 1-4, 8, 14-15, 17-18, 21-24, 26-28, 30-31 and 36-38 were rejected under 35 USC 102(e) as anticipated by McGinn et al. U.S. Patent 6,262,972 (hereinafter McGinn). As noted above, claims 3-4, 8, 22, 28, 31 and 36 are canceled without prejudice or disclaimer.

McGinn teaches the use of separate cables for the transmit and receive directions. All of McGinn's repeaters are back to back transceivers. McGinn does not disclose or suggest the presently claimed invention of increasing gain using isolating upstream and downstream filters and amplifiers.

Accordingly, withdrawal of this rejection is respectfully requested.

Claims 5 and 34 were rejected under 35 USC 103 as obvious over Erreygers in view of Conroy et al. U.S. Patent 6,459,684.

Conroy discloses a multiplexed CODEC for an ADSL system. However, the Conroy reference does not obviate the above-discussed deficiencies of the Erreygers reference with regard to the presently claimed invention of claims 5 and 34.

Accordingly, withdrawal of this rejection is respectfully requested.

Claims 6-7 were rejected under 35 USC 103 as obvious over Tzannes et al. U.S. Patent 5,751,716 in view of Erreygers.

Tzannes discloses a modulation/demodulation scheme that is similar in principle to the discrete-multi-tone (DMT) scheme used in ADSL. However, Tzannes does not disclose or suggest increasing gain by using isolating upstream and downstream filters and amplifiers. Further, as discussed above in detail, Erreygers does not disclose or suggest increasing gain by using isolating upstream and downstream filters and amplifiers.

Accordingly, withdrawal of this rejection is respectfully requested.

Claim 9 was rejected under 35 USC 103 as obvious over Erreygers in view of Adler U.S. Patent 4,939,747 (hereinafter Adler).

Adler discloses a digital communication system with addressable repeaters and devices for fault isolation. However, the Adler reference does not obviate the above-discussed deficiencies of the Erreygers reference with regard to the presently claimed invention.

Accordingly, withdrawal of this rejection is respectfully requested.

Claims 10-11 and 13 were rejected under 35 USC 103 as obvious over Erreygers in view of Pesetski et al. U.S. Patent 6,151,691 (hereinafter Pesetski).

Pesetski discloses a remote report system for digital transmission line elements. However, the Pesetski reference does not obviate the above-discussed deficiencies of the Erreygers reference with regard to the presently claimed invention.

Accordingly, withdrawal of this rejection is respectfully requested.

At page 10 of the Action and page 1, tick box 7 of the Action, the Examiner indicates that claim 12 would be allowable if rewritten to include all the limitations of the base claim and any intervening claims. This indication of allowable subject matter is very much appreciated. Claim 12 is rewritten in independent form.

Other than as explicitly set forth above, this reply does not include acquiescence to statements by the Examiner. In view of the above, all the claims are considered patentable and allowance of all the claims is respectfully requested. The Examiner is invited to telephone the undersigned (at direct line 512-457-7233) for prompt action in the event any issues remain.

No fee is due for filing this Reply because it is being filed within the shortened statutory period for response as set in the Office Action dated November 14, 2003.

The Commissioner is hereby authorized to charge any fees or credit any overpayments to  
Deposit Account No. 50-0456 of Gray Cary Ware & Freidenrich, LLP.

Respectfully submitted,

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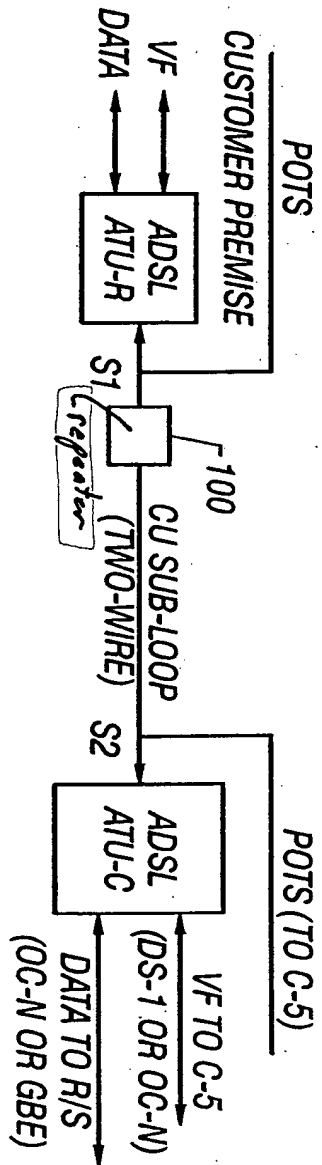


FIG. 1

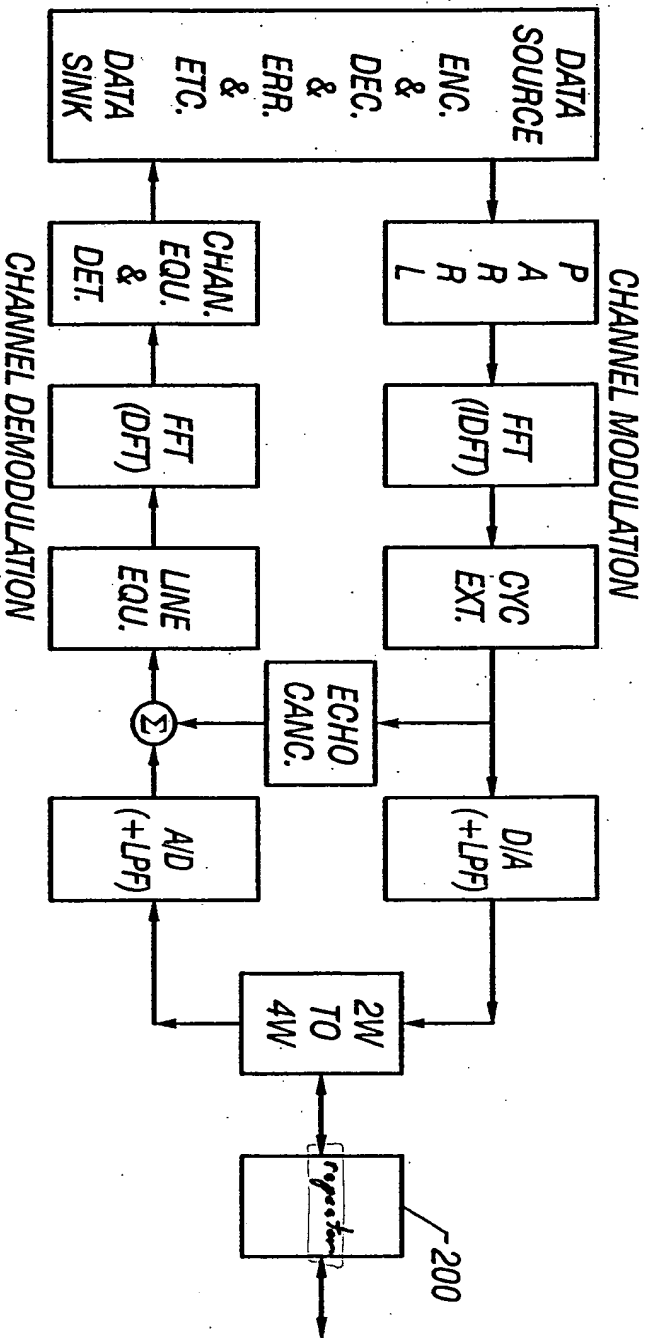


FIG. 2



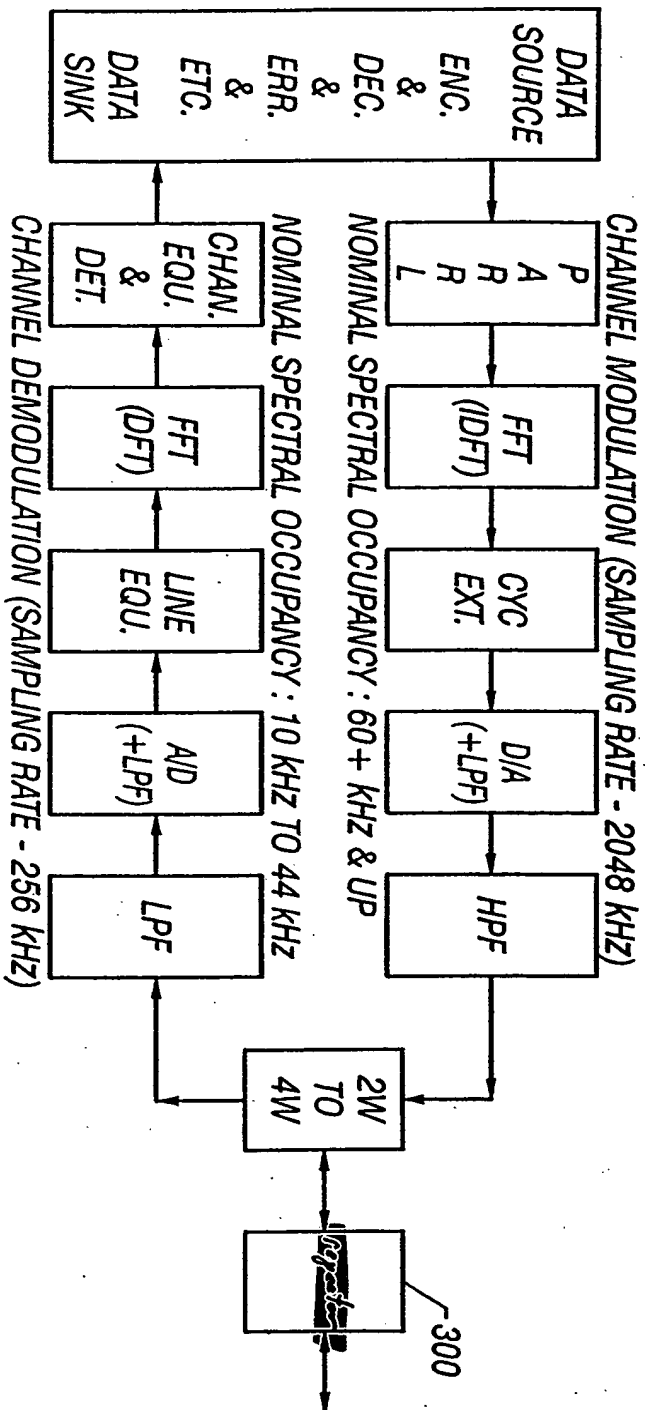


FIG. 3